SERO

Sustainability 401

Part 1: Houston, we have a problem

October 30, 2003
Fort Lewis, WA

Who's Here?

- *Who do you represent?*
- *Why are you here?*

  - ✓ Dedicated environmentalist
  - ✓ Wandered in by mistake, can't find the exit
  - ✓ Make sure the tree-huggers don't mess up my World
  - ✓ Other (Oh really? Like what?)

Learning Objectives

- *There's a problem – we are exceeding the earth's capacity to provide resources and absorb wastes*
- *There's a solution – "sustainability" is a framework that balances economy, well-being, and environment*
- *See what a few "organizations with vision" have accomplished*
- *Join the Quest to save the world*
- *Have fun*

Gradients of Agreement Poll

Where's your head?

1. *Endorse*
2. *Agree with reservations*
3. *Abstain/don't know*
4. *Disagree*
5. *Totally disagree*

Poll

- *There's a problem – we are exceeding the earth's capacity to provide resources and absorb wastes*

1. *Endorse*
2. *Agree with reservations*
3. *Abstain/don't know*
4. *Disagree*
5. *Totally disagree*

Poll

- *There's a solution – "sustainability" is a framework that balances economy (mission), well-being, and environment*

1. *Endorse*
2. *Agree with reservations*
3. *Abstain/don't know*
4. *Disagree*
5. *Totally disagree*

Poll

- *We can have both a strong military and a strong environment.*

1. *Endorse*
2. *Agree with reservations*
3. *Abstain/don't know*
4. *Disagree*
5. *Totally disagree*

Poll

- *We are on a glidepath to have both a strong military and a strong environment well into the future.*

1. *Endorse*
2. *Agree with reservations*
3. *Abstain/don't know*
4. *Disagree*
5. *Totally disagree*

Please dim the lights for the movie.

Houston, we have a problem.

The following slides are from our mentors, Mary and Brian Nattrass.

Dancing with the Tiger
Learning sustainability Step by Natural Step
2002

Dancing Partner

STARBUCKS COFFEE

WHISTLER 1-800-WHISTLER

CH2MHILL

THE Fairmont CHATEAU WHISTLER

WHISTLER TOURISM WHISTLER

BC Buildings Corporation

ACG CRASH AND LEARN

Marines The Few. The Proud.

WHISTLER BLACKCOMB

NASA

VICTOR INNOVATEX

City of Seattle

CollinsWood

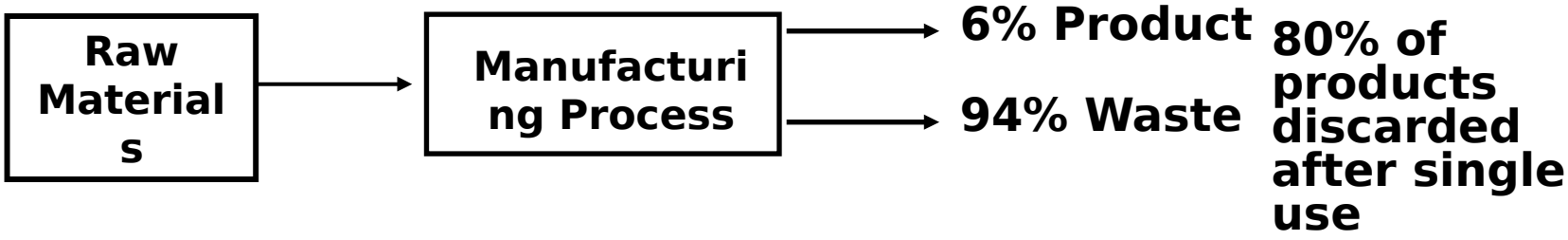
Electrolux

IKEA

SCANDIC

The Things We Use

Linear Industrial Processes: Waste is created faster than it can be reconstituted to quality resources.
Take-make-waste

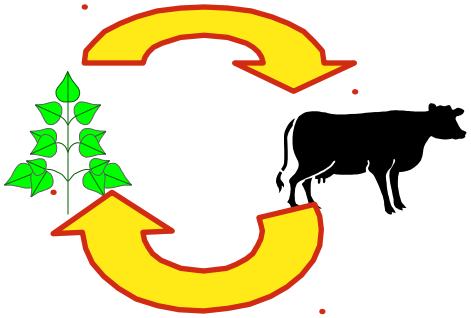


99% of original materials used in the production of, or contained in, the goods made in the US become waste within 6 weeks of sale. (Attributed to Paul Hawken, *Factor 4*, 1997)

Material Flows of Tomorrow

In cyclical natural systems, waste does not exist.

Waste = Food.

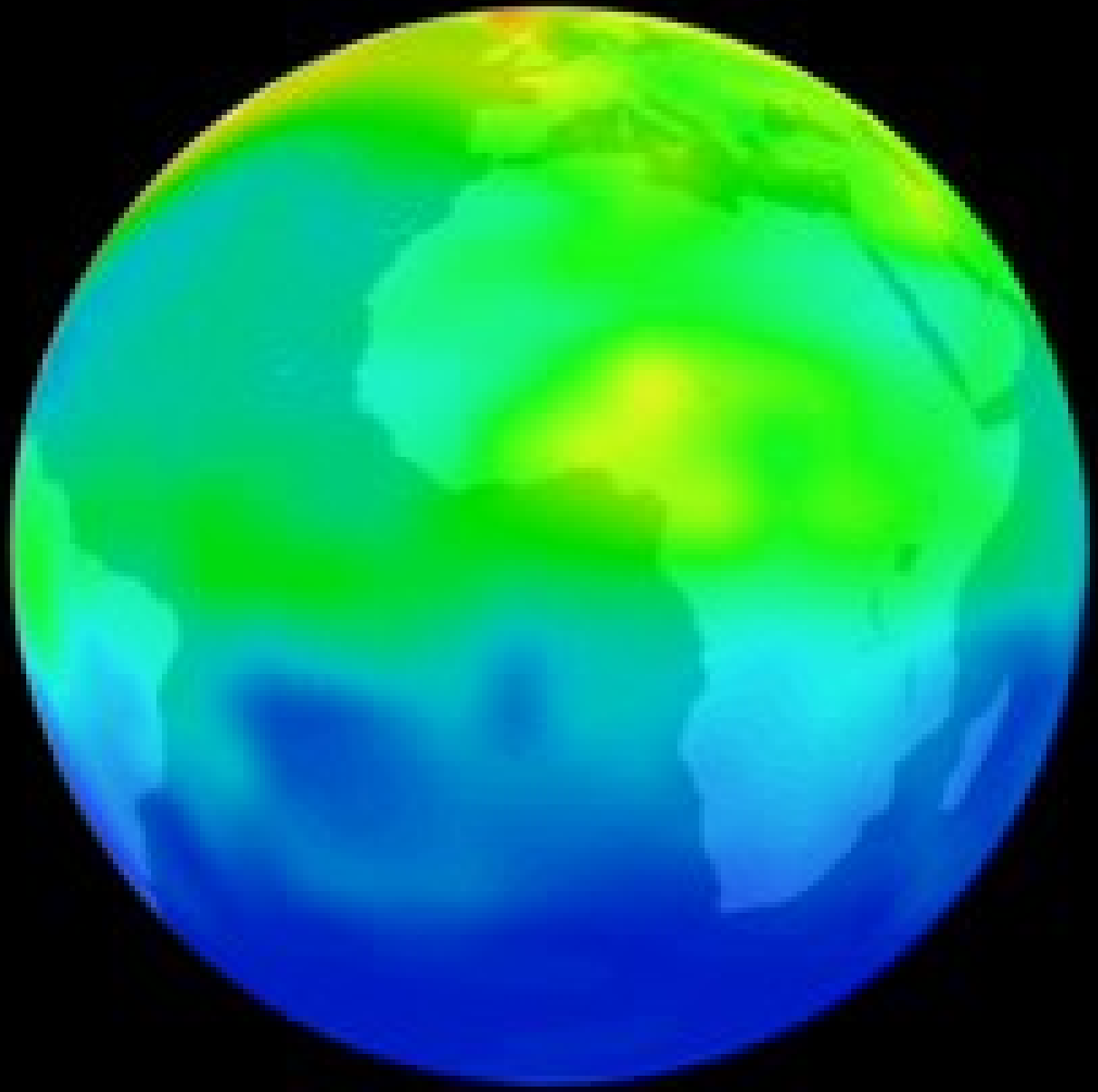


The Energy We Use

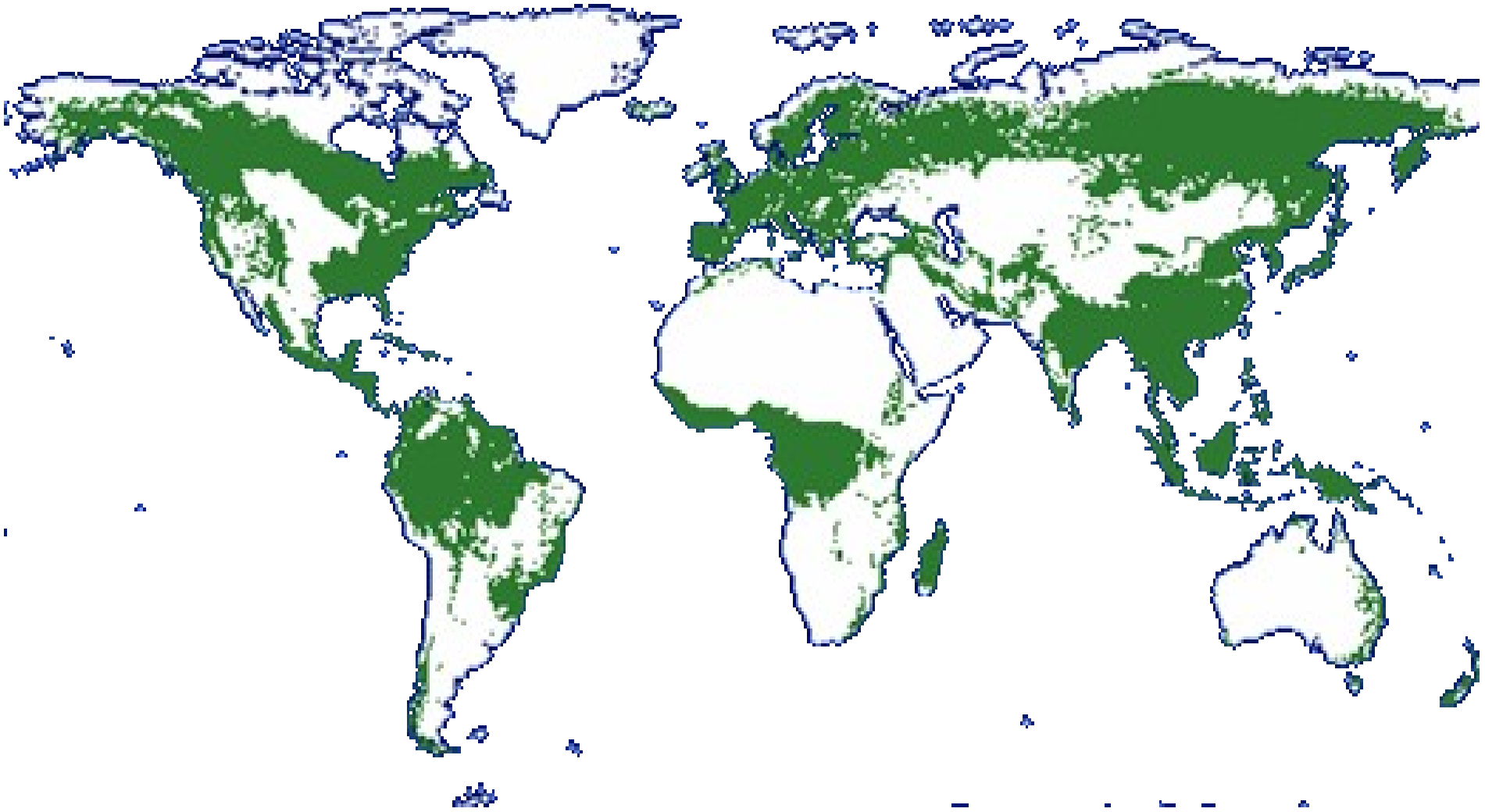
BP Statistical Review of World Energy 2002 provides the following estimates of fuel remaining if growth in the consumption rates stay steady:

- Oil – 40 years
- Natural Gas – 62 years
- Coal – 216 years

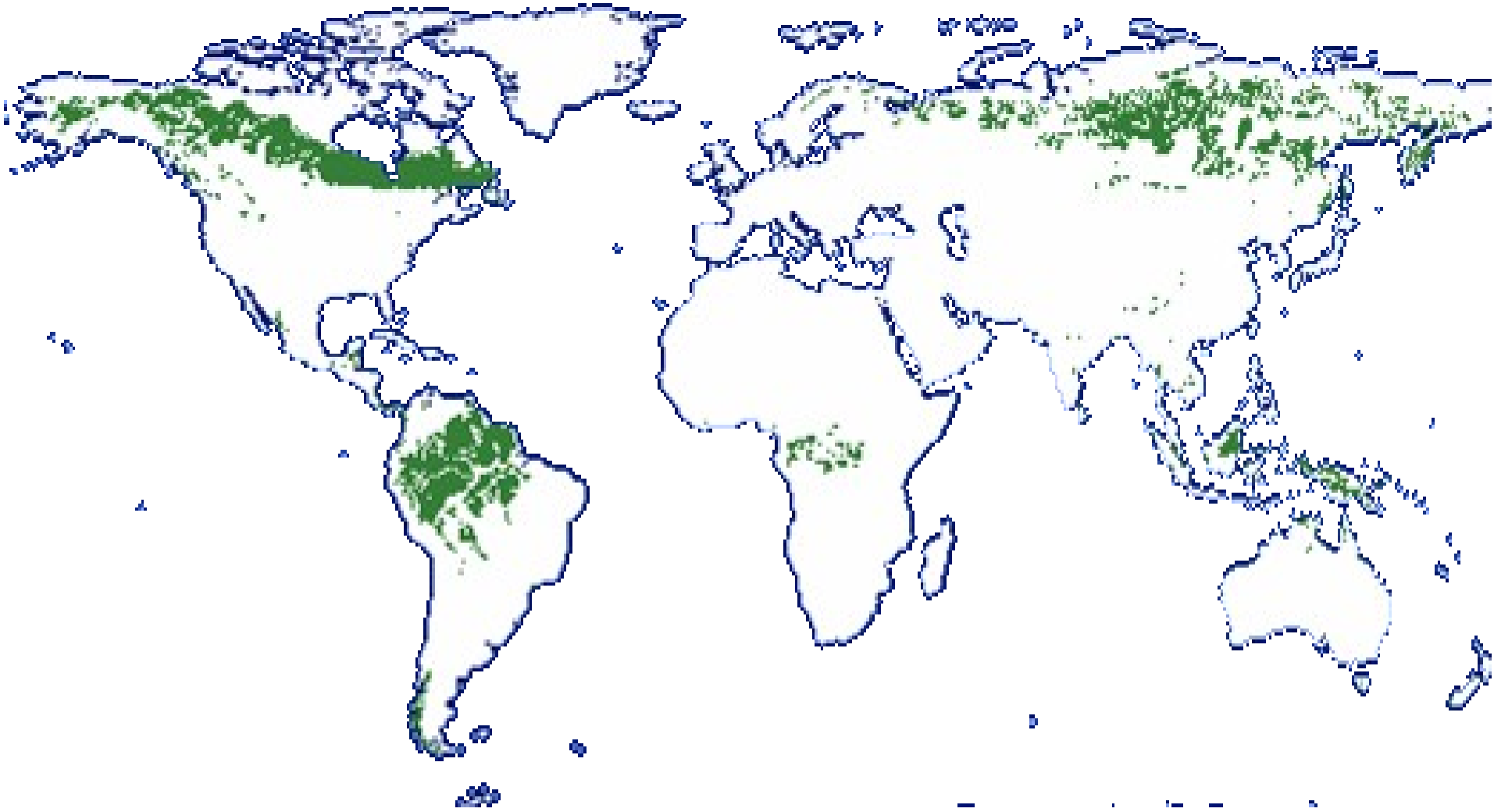
(http://www.bp.com/centres/energy2002/index.asp)



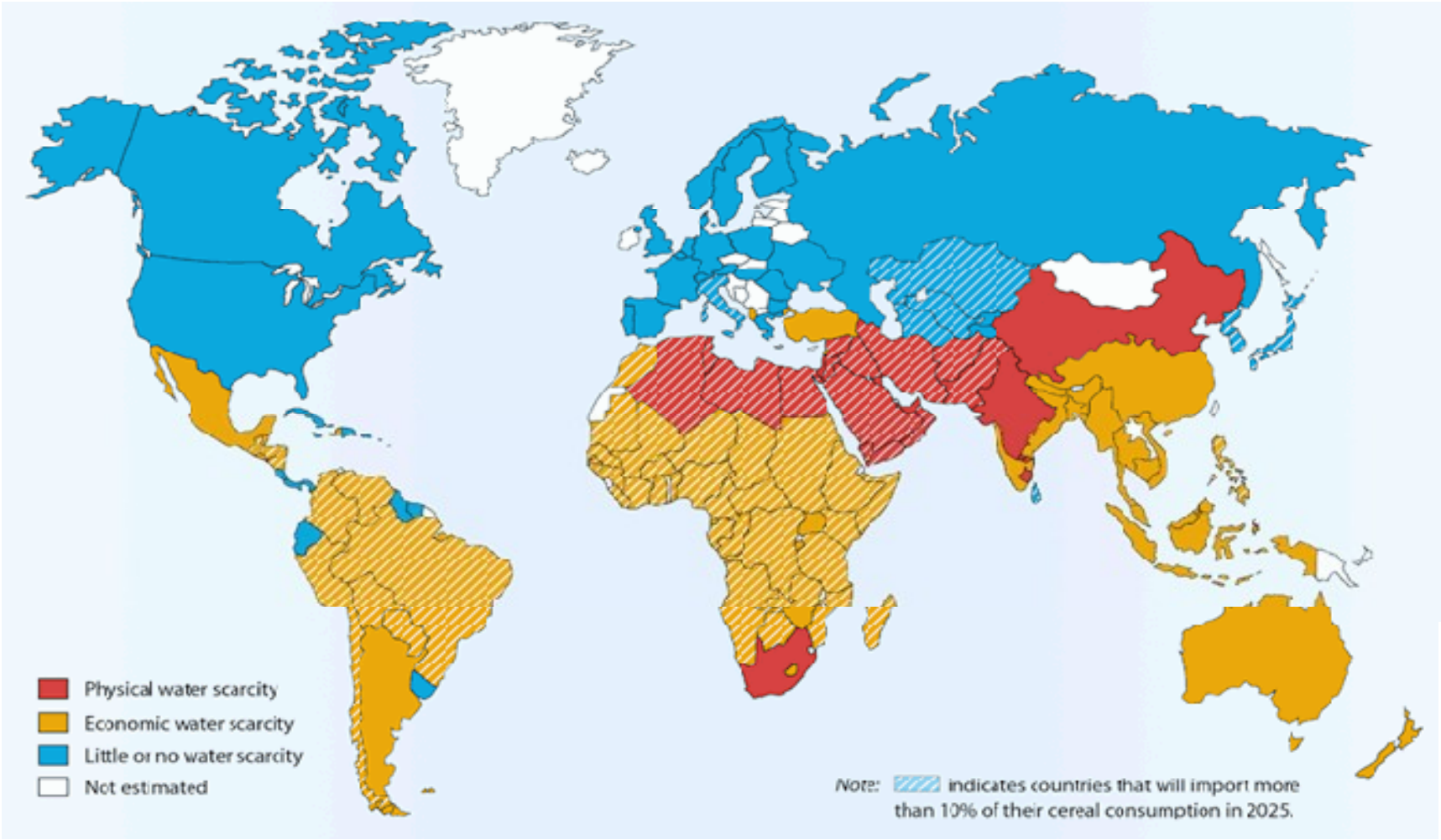
Frontier Forests
8,000 Years Ago



Frontier Forests Today

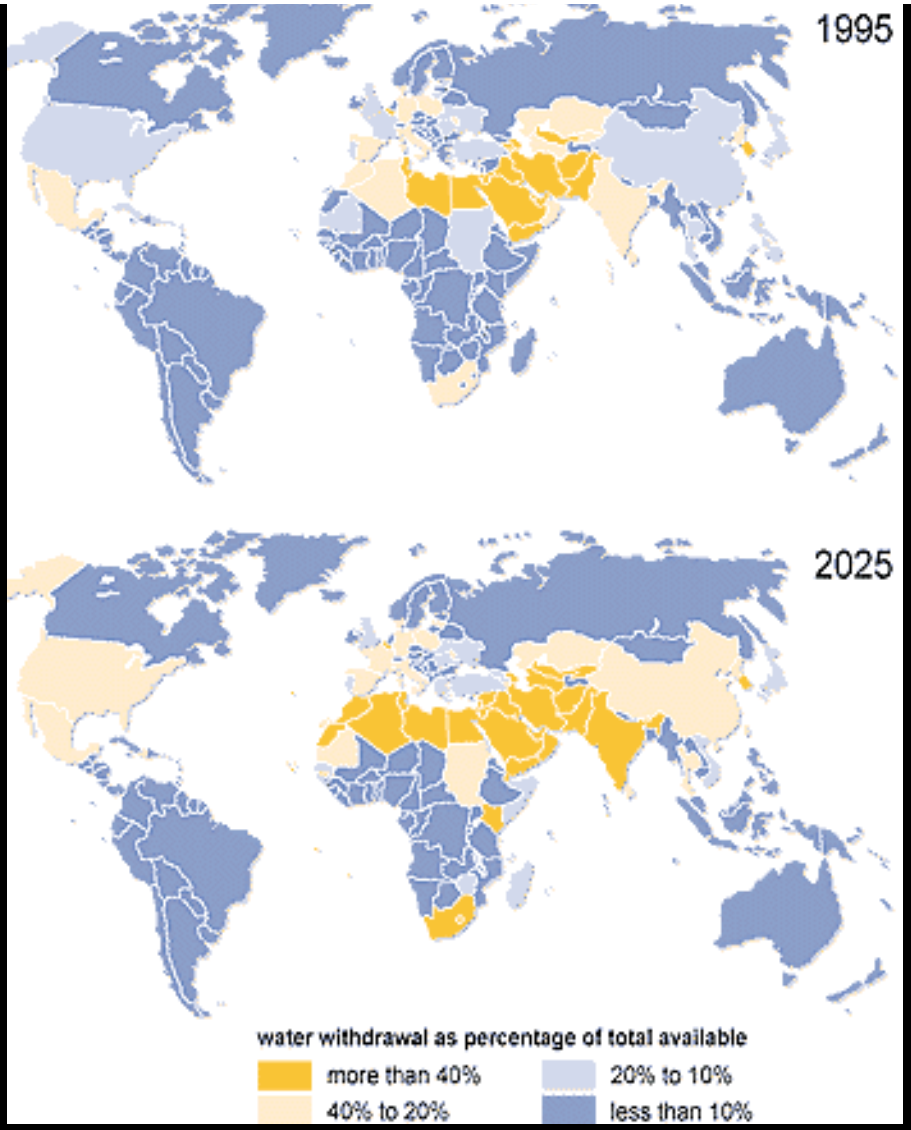


Water Scarcity


Physical water scarcity
Economic water scarcity
Little or no water scarcity
Not estimated
Note: indicates countries that will import more than 10% of their cereal consumption in 2025.

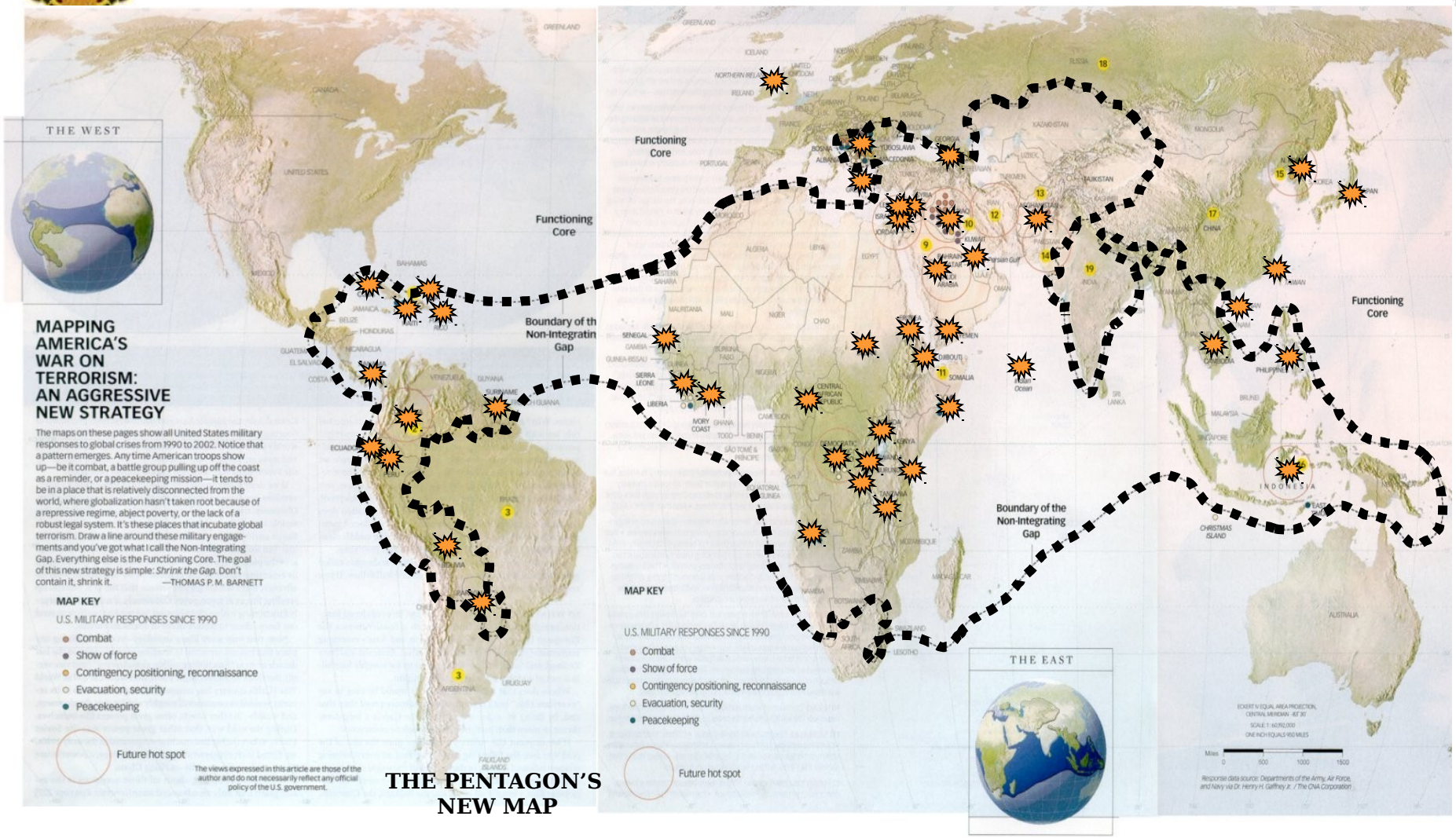
Source: International Water Management Institute 2002

Water Scarcity is a Security Issue



The US intelligence community predicts that changes in population and the spread of information and disease will increasingly threaten US national security.

Water scarcity, in particular, is expected to be a significant cause of instability around the world.


THE WEST
MAPPING AMERICA'S WAR ON TERRORISM: AN AGGRESSIVE NEW STRATEGY
The maps on these pages show all United States military responses to global crises from 1990 to 2002. Notice that a pattern emerges. Any time American troops show up—be it combat, a battle group pulling up off the coast as a reminder, or a peacekeeping mission—it tends to be in a place that is relatively disconnected from the world, where globalization hasn't taken root because of a repressive regime, abject poverty, or the lack of a robust legal system. It's these places that incubate global terrorism. Draw a line around these military engagements and you've got what I call the Non-Integrating Gap. Everything else is the Functioning Core. The goal of this new strategy is simple: Shrink the Gap. Don't contain it, shrink it. —THOMAS P. M. BARNETT
MAP KEY
U.S. MILITARY RESPONSES SINCE 1990
Combat
Show of force
Contingency positioning, reconnaissance
Evacuation, security
Peacekeeping
Future hot spot
The views expressed in this article are those of the author and do not necessarily reflect any official policy of the U.S. government.
Functioning Core
Boundary of the Non-Integrating Gap
THE EAST

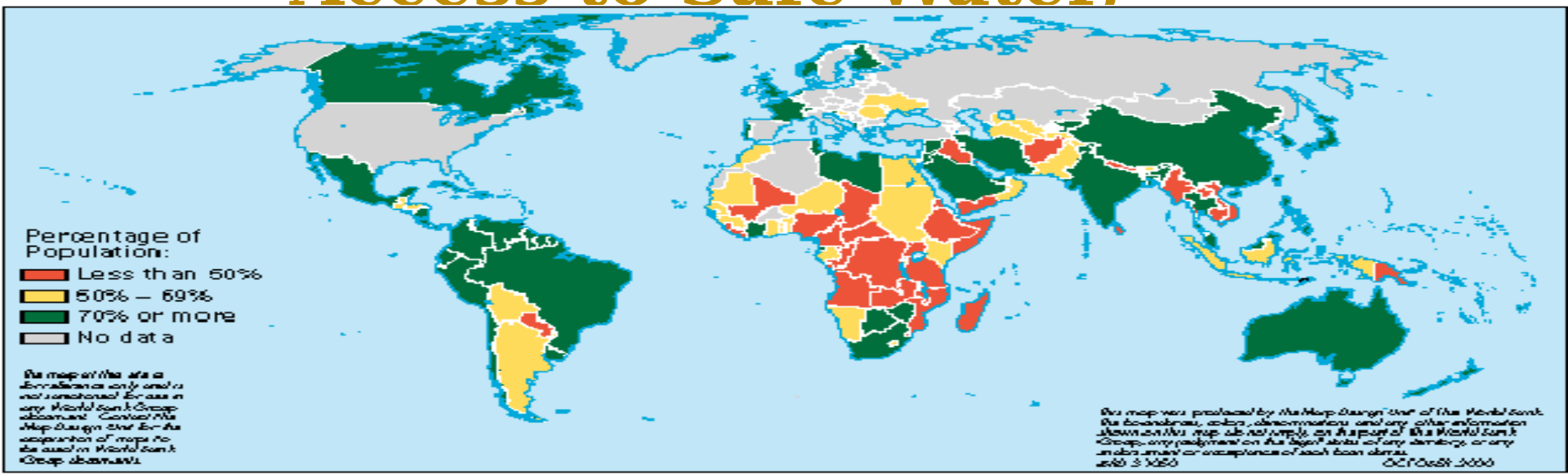
THE PENTAGON'S NEW MAP

IT EXPLAINS WHY WE'RE GOING TO WAR, AND WHY WE'LL KEEP GOING TO WAR.

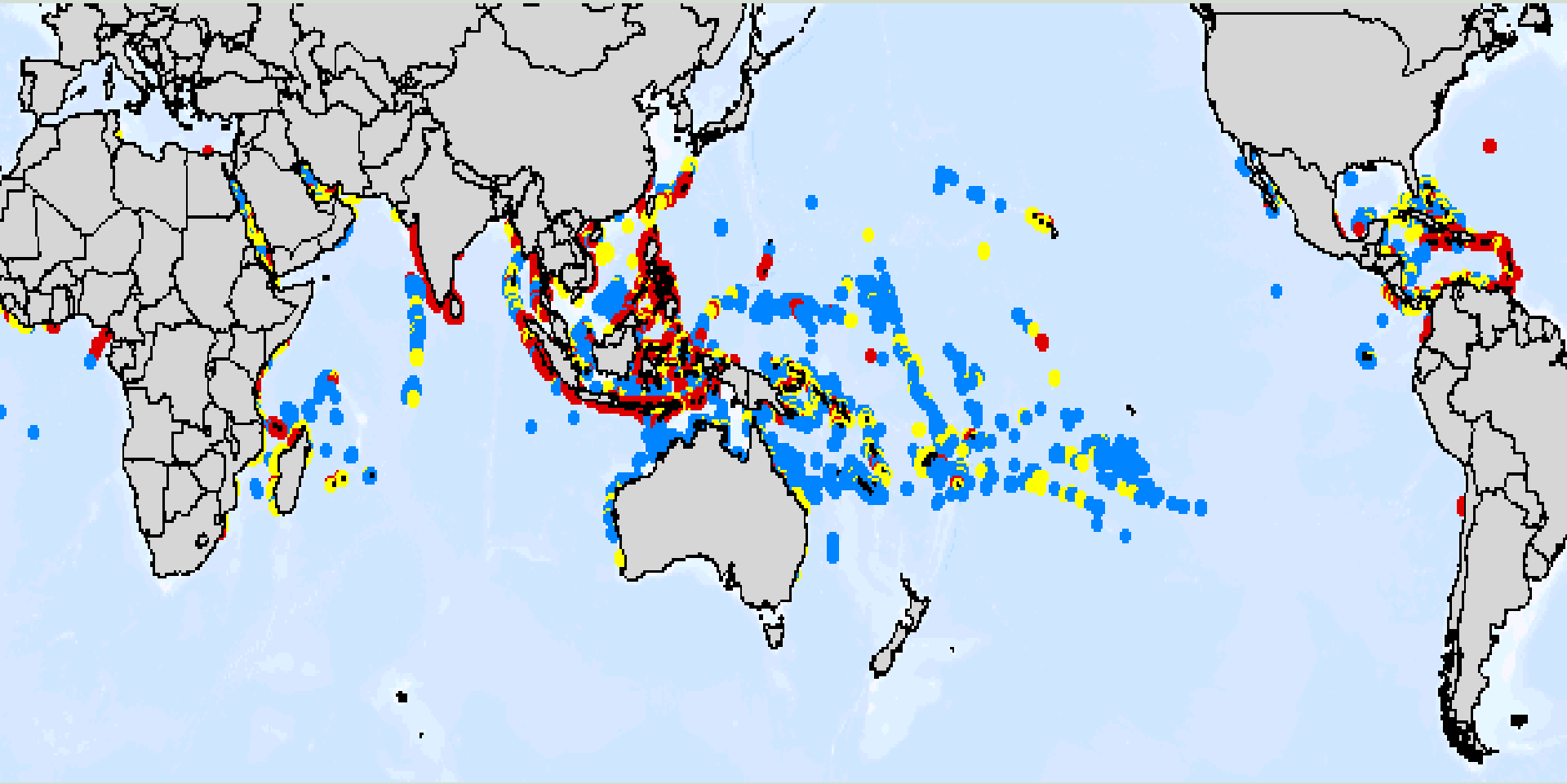
BY
THOMAS P.M. BARNETT, U.S. NAVAL WAR COLLEGE
[MAPS BY WILLIAM MCNULTY]

From Esquire, March 2003 issue

Access to Safe Water.



Reefs at Ris



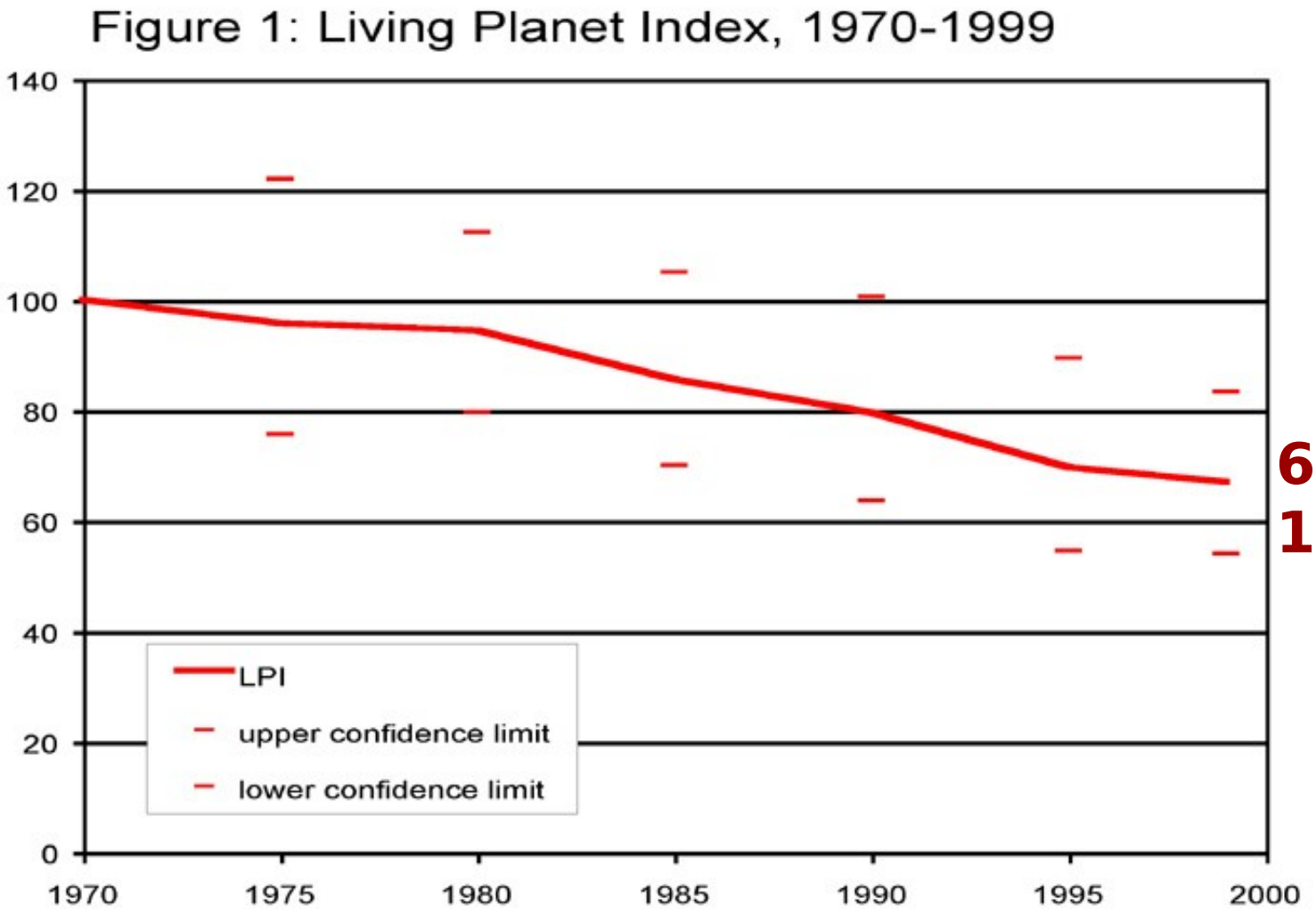
Source: *World Resources*

The Food We Eat

- The energy used to produce 1 lb of meat could yield 40 lb of soybeans
- 1 lb of meat requires 2500 gallons of water to produce. 1 lb of wheat requires 25 gallons.
- Meat production currently requires 56% of the agricultural land used in the US.

If everyone in the world ate like us…

Living Planet Index

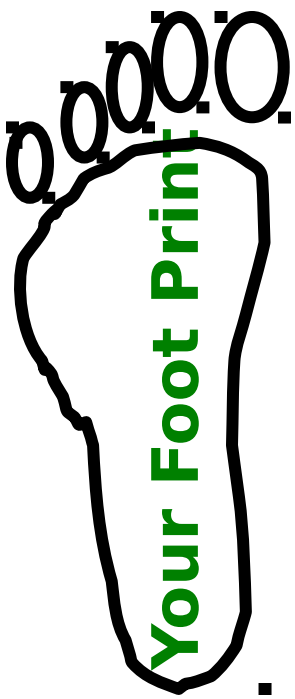


100% in 1970

65% in 1999

Ecological Footprint

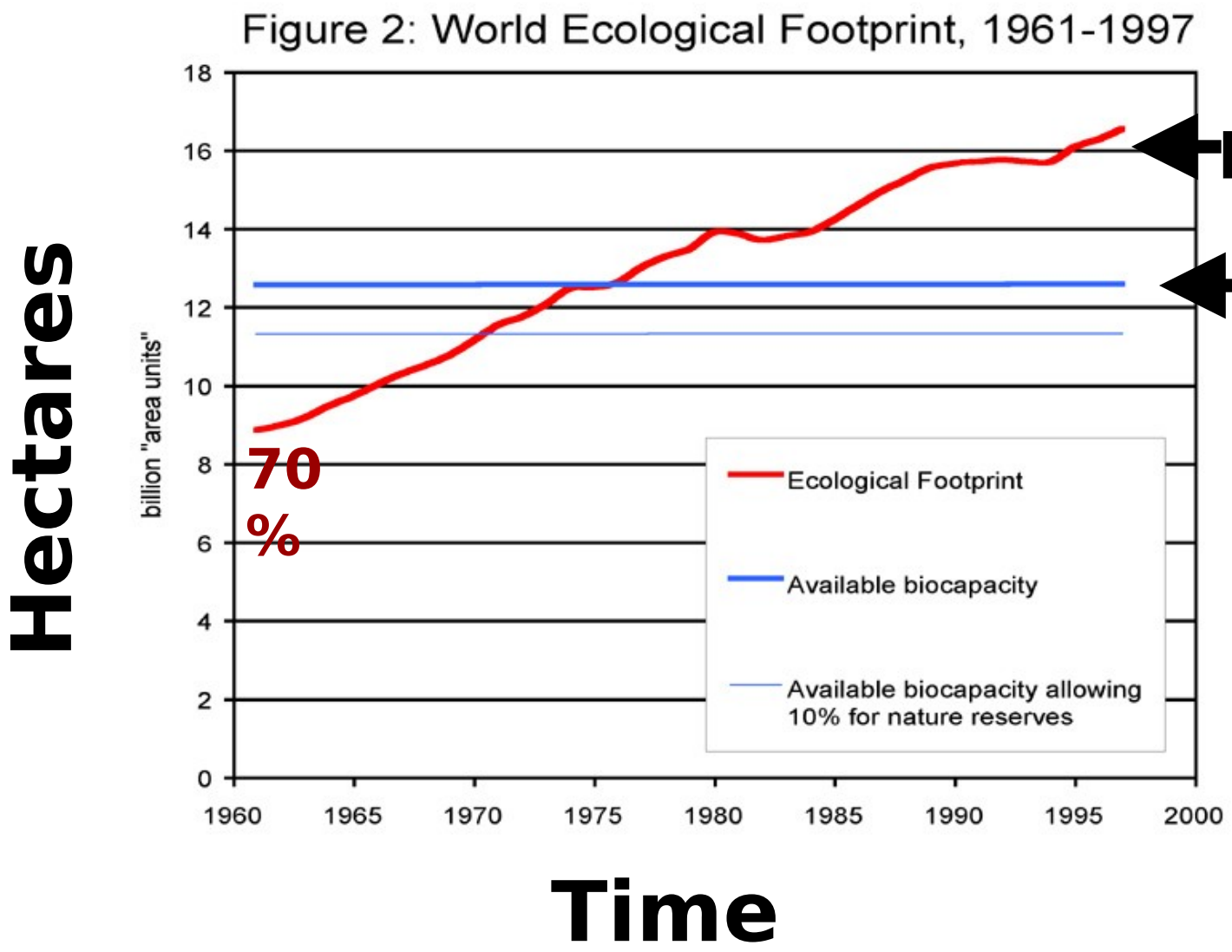
The Ecological Footprint of any individual is the sum of several separate components:



- Growing crops,
- Grazing animals,
- Harvested timber
- Catching fish and productive marine products,
- Accommodating infrastructure
- Burning fossil fuel

The Ecological Footprint is measured in "area units". One area unit is the equivalent of one hectare of world average productivity.

World Ecological Footprint

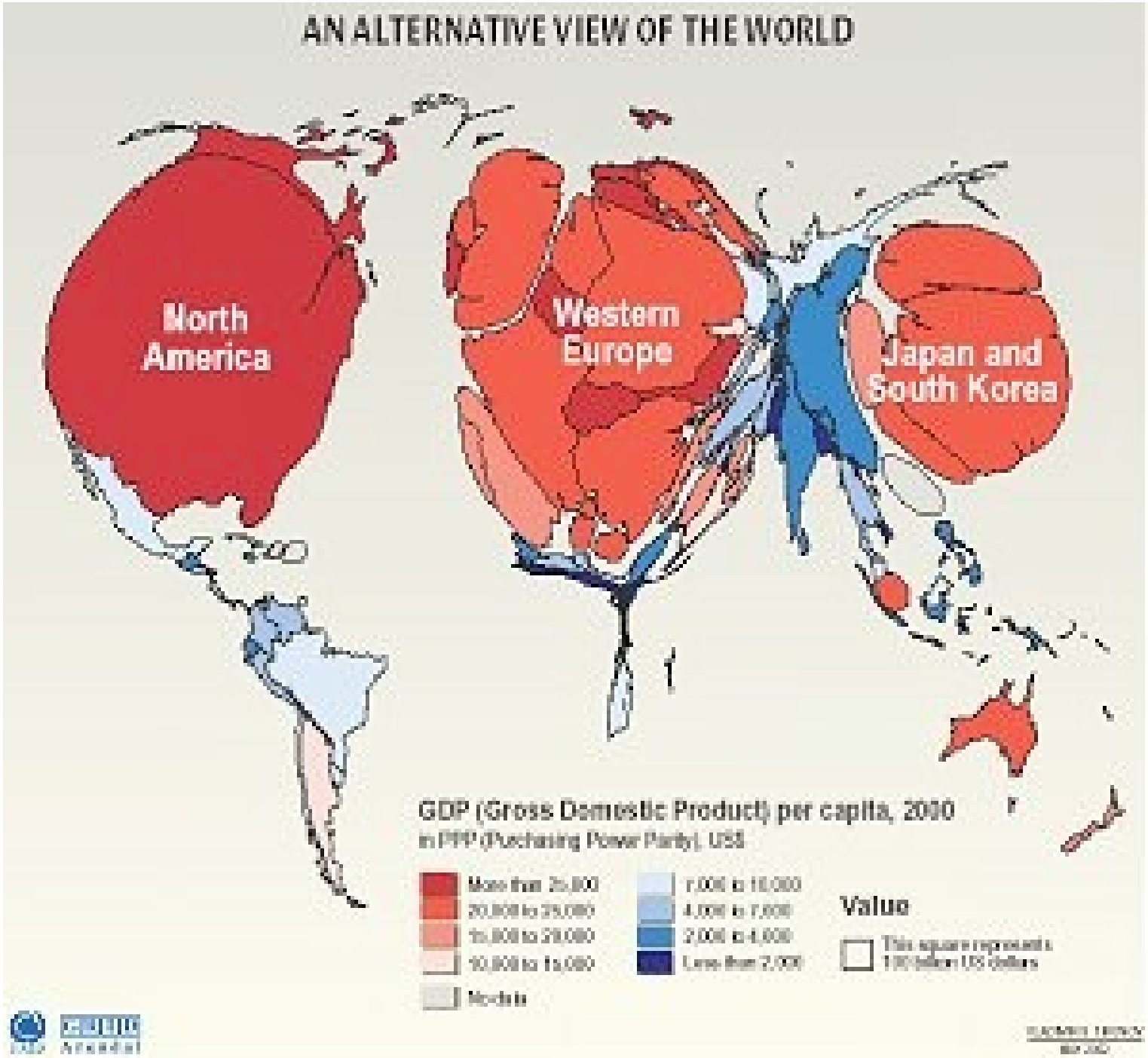


Intended Consequences – Meet Human Needs

- Prosperity
- High Quality of Life
- Strong economy
- Incredible array of goods and services

Unintended Consequences –
a crashing biosphere and disenfranchised people

“Only once in the history of this planet -- now -- have total flows and movement of materials by one species matched or exceeded natural planetary flows.”


AN ALTERNATIVE VIEW OF THE WORLD
North America
Western Europe
Japan and South Korea
GDP (Gross Domestic Product) per capita, 2000
in PPP (Purchasing Power Parity), US$
More than 35,000
20,000 to 35,000
10,000 to 20,000
5,000 to 10,000
7,000 to 10,000
4,000 to 7,000
2,000 to 4,000
Less than 2,000
No data
Value
This square represents
100 billion US dollars

A Global Perspective

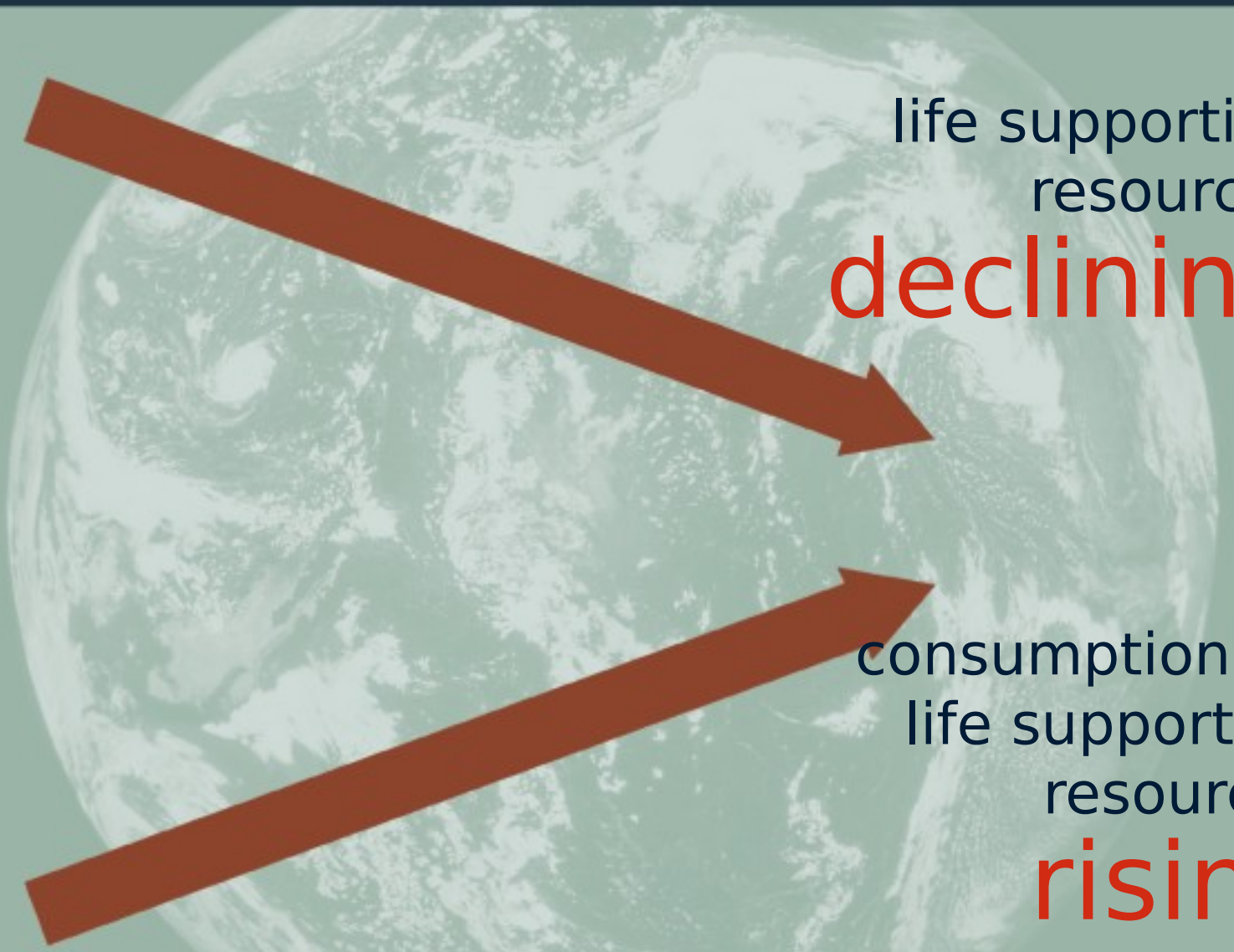


Figure 1: Living Planet Index, 1970-1999

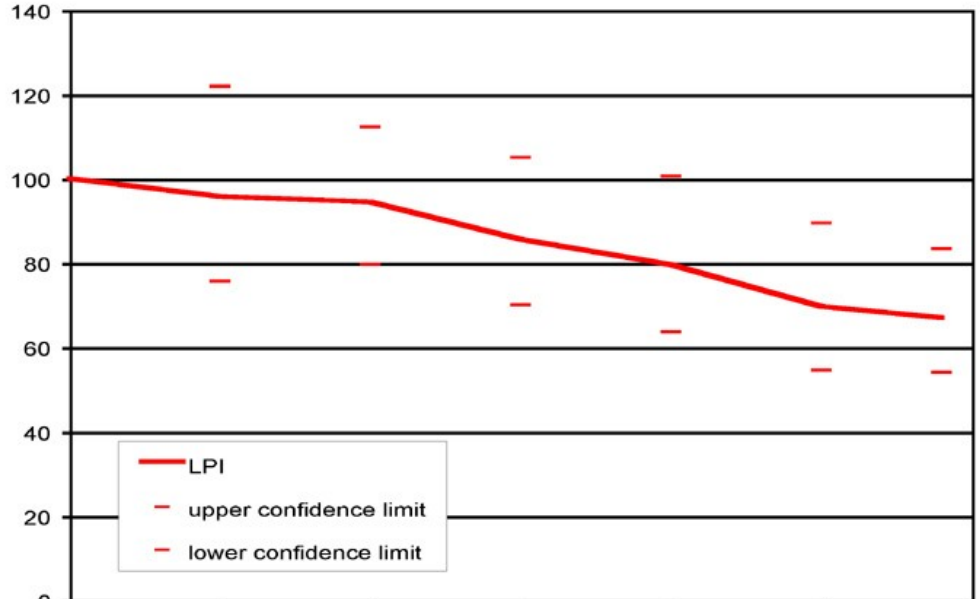
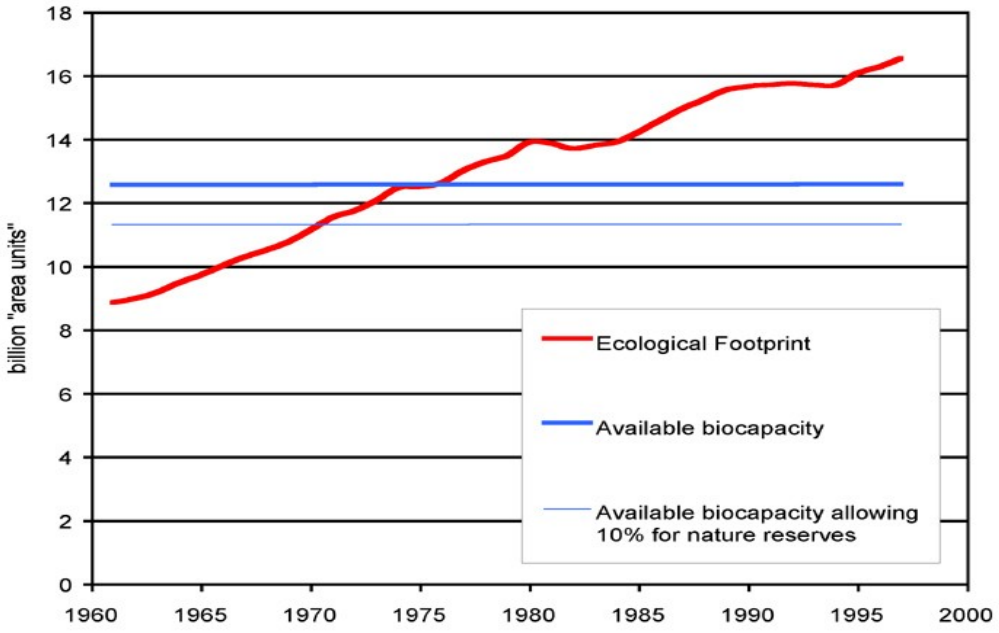
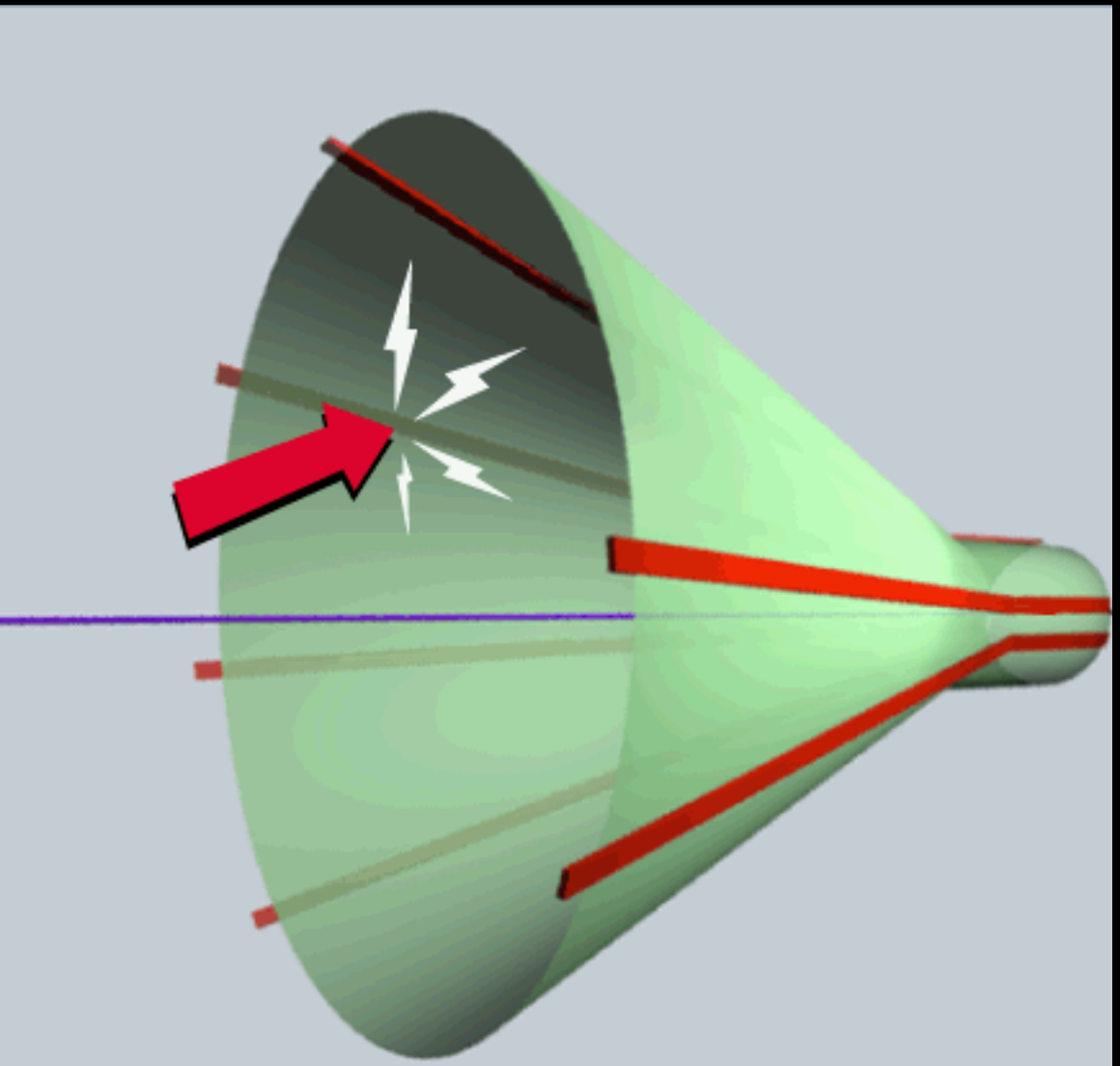


Figure 2: World Ecological Footprint, 1961-1997

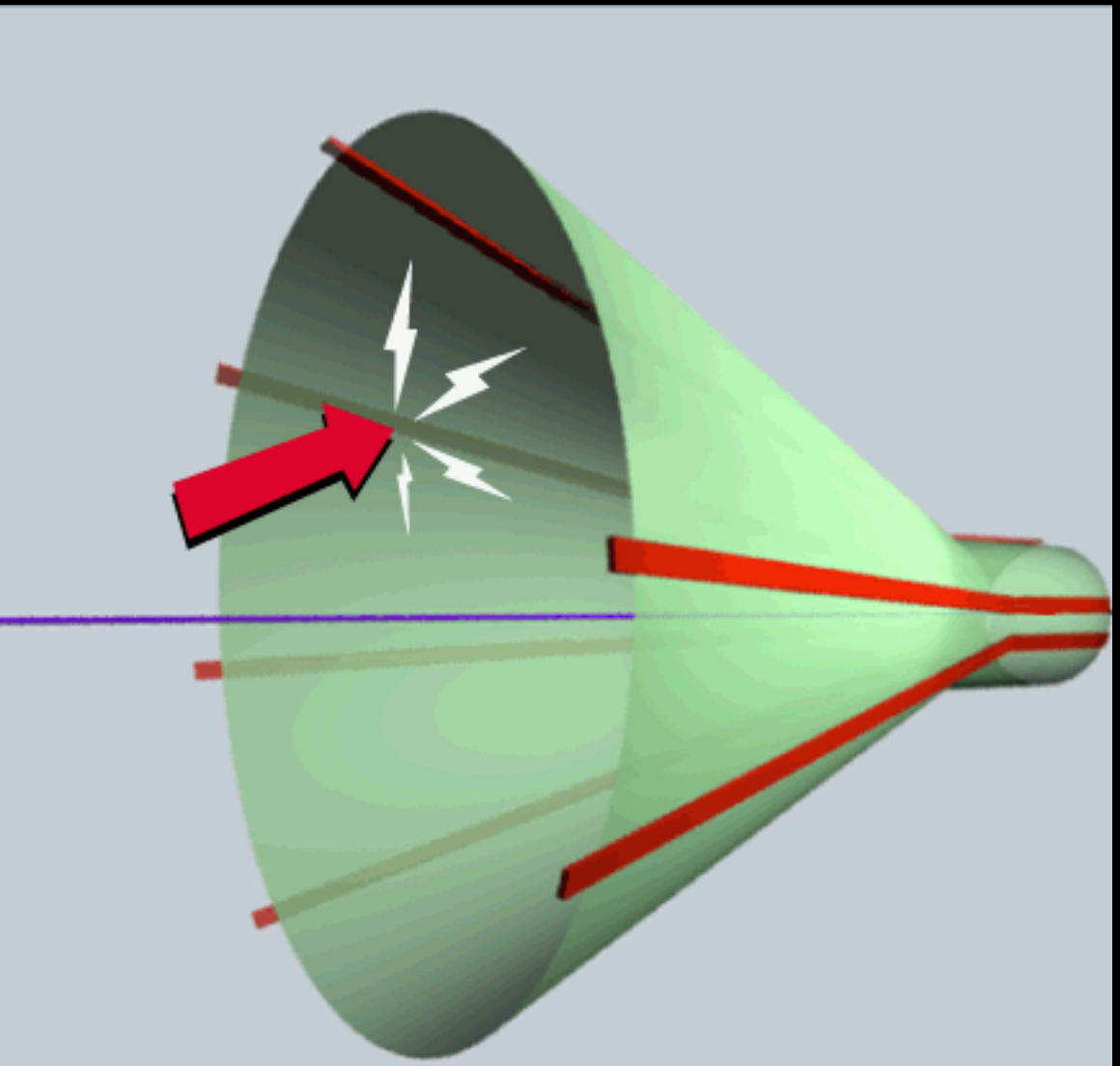


CORPORATIONS: Hitting the Wall



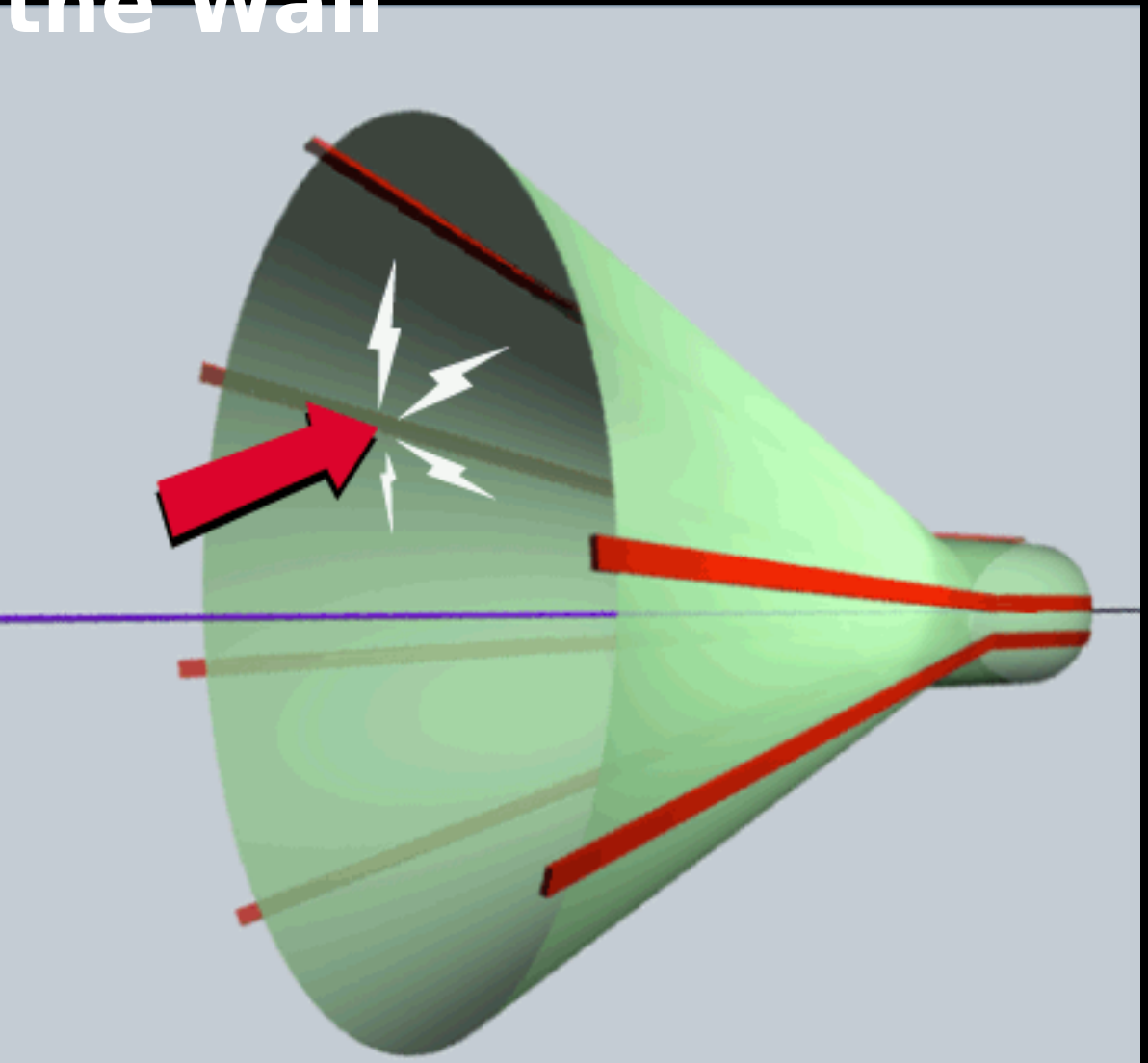
- **Bad Publicity**
- **Boycotts**
- **Loss of Markets**
- **Litigation**
- **Employee dissatisfaction**
- **Government regulation**
- **Increased costs**

MUNICIPALITIES: Hitting the Wall



- **Ecological degradation**
- **Limits to economic development**
- **Bad publicity**
- **Increased pressure on resources**
- **Increased costs**

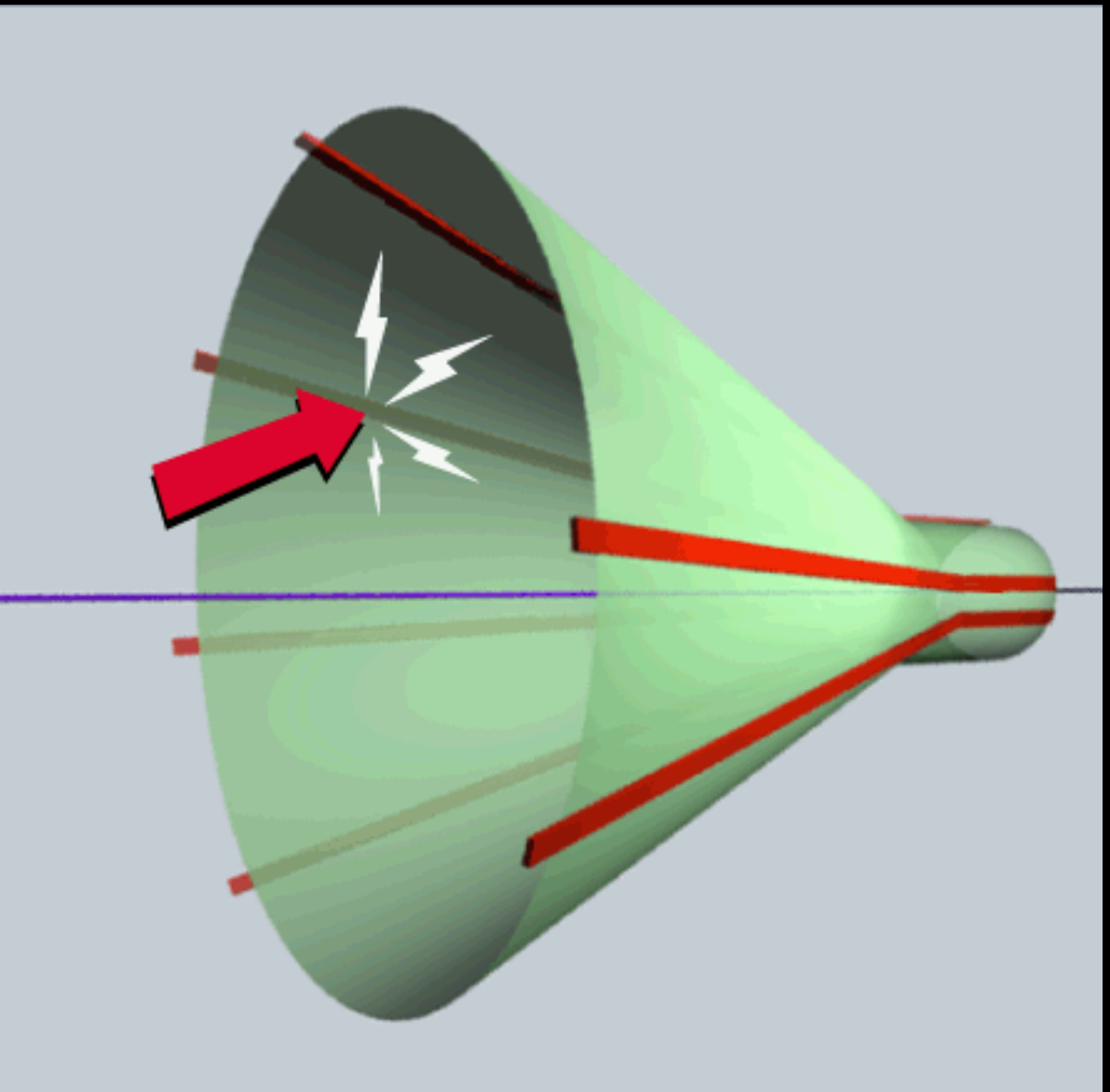
Military Installations/Bases: Hitting the Wall



GROUP EXERCISE

What are the effects on YOUR BASE of the world-wide decline in natural resources and rising consumption?

Military Installations/Bases: Hitting the Wall



- **constraints on military mission**
- **public concerns**
- **reduced well-being**
- **resource scarcity**
- **rising costs**
- **degradation of air, land, water**
- **competition for resources**

ENCROACHMENT

Homeland Security

We're at zero balance on earths – we've only got one, no spares. MG Lust, Dept. Army

Depressed Yet?

"More than at any time in history, mankind faces a crossroad. One path leads to despair and utter hopelessness; the other to total extinction. Let us pray that we have the wisdom to choose correctly."

Woody Allen

And now on to
The Most Important Question in Life…